Potassium Prescription in HD

ECFV

ICFV

Sodium 135-145	Sodium 10-20
Potassium 3.5-5.0	Potassium 130-140
Chloride 95-105	
Bicarbonate 22-26	
Glucose 90-120	
Calcium 8.5-10	
Magnesium 1.4-.1	Magnesium 20-30
BUN 10-20	BUN 10-20

What Does It Do?

Normal Cellular Function

Cardiac Rhythm

Neuromuscular Function-

Hypokalemia –what happens?

- Weakness, fatigue, paralysis, respiratory muscle problem
- Rhabdomyolysis
- Constipation
- Cardiac arrhythmias

Hyperkalemia

- Clinical changes with greater than 6.5
- Weakness, paralysis
- Respiratory failure
- EKG changes evolve to “sine wave”pattern and V Fib

Sudden Death

- 42% of dialysis patient deaths may be sudden or cardiac in origin
- 22% of deaths related to cardiac arrests and arrhythmia
- Death more likely on Mondays or Tuesdays
- Those who arrest in the KC are older, have DM and CVC.
- Intradialytic atrial and ventricular arrhythmias are common

Sudden Death

- Hypokalemia can cause sudden death in patients with conduction system abnormalities, CAD, LVH, on dig/diuretics, and with LOW POTASSIUM DIALYSATE
- Sudden cardiac death is the single most common cause of death in dialysis patients ¼-1/3 of all deaths. The use of Beta blockers may help.

Sudden Death

- In patients with Ischemic Heart Disease (especially those with new MI) it was found that there was no relationship between timing of dialysis and mortality.
- THE GREATER THE DECREASE IN POTASSIUM CONCENTRATION DURING THE DIALYSIS TREATMENT THE HIGHER THE MORBIDITY FROM HYPOTENSION OR ARRHYTHMIAS.
- THE AMOUNT OF POTASSIUM FLUX IS MORE IMPORTANT IN DETERMINING PATIENT OUTCOME.

Hypokalemia

- An increased risk of cardiac arrest may be associated with a low potassium concentration in the
- dialysate. In a retrospective study of dialysis unit-based cardiac arrest, patients who suffered a
- cardiac arrest at the time of dialysis were twice as likely to be dialyzed against a 0.0 or 1.0
- mEq/L potassium dialysate bath compared with controls, despite the same predialysis
- potassium levels [4]. Another study found an independent twofold increase in sudden death for
- patients dialyzed with a potassium bath of <2.0 mEq/L [11]. In this study, there was no evidence
- for a benefit of low potassium dialysate, even among patients with higher predialysis serum
- potassium levels. In another study of 37,765 participants, compared with dialysate potassium 3
- mEq/L, dialysate concentrations 1.5 and 2.0 to 2.5 mEq/L were associated with increased risk
- of SCD (hazard ratio [HR] 1.39, 95% CI 1.12-1.74 and HR 1.17, 95% CI 1.01-1.37, respectively)
- [12]. The magnitude of the association of SCD with dialysis potassium 1.5 was greater among
- patients with serum potassium <5 mEq/L.